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10/749,662	12/31/2003	Pirjo Pasanen	037145-0501	9738
30542	7590	08/21/2007	EXAMINER	
FOLEY & LARDNER LLP			BOCURE, TESFALDET	
P.O. BOX 80278			ART UNIT	
SAN DIEGO, CA 92138-0278			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/749,662

Applicant(s)

PASANEN ET AL.

Examiner

Tesfaldet Bocure

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 0103 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed "multiple base stations" in claim 4 and "processor coupled to the radio interface " in claims 17 and 22 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It has been claimed in claims 10 and 11 that “---the first and second radio interfaces using different category of communication link” in claim 10 and “the different categories of communications links comprising multi-carrier modulation, spread-spectrum transmission, frequency division duplexing and time division duplexing” in claim 11. However other than what is disclosed in paragraph [0031]-[0032], it is not clear how at least one of the RSs will change from one mode of operation to the other under the instruction of the BS.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 6 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by **Fujiwara et al. Fujiwara** (US patent Publication number 2003/0165127, of a record).

Fujiwara teaches a multi-hop communication system (see figures 2, 5 and 11) where the communication system comprising: a user station (see destination station 3) for communicating to the base station (see source station 1) using a plurality relay stations (see Relay station 2A- 2C, claimed at least two RS in claim 3) as in claim 1 and 3.

Further to claim 6 and 8, also teaches that a pilot signal is transmitted from the destination station to the base station and relay station having a corresponding ID identifying the transmission path having minimum required transmission power (see abstract and figures 7, 8A-8B) as in claim 6; and the use of CDMA techniques for transmission of signal between the user station and destination (see paragraph [008]) using a single frequency spectrum for transmission between the destination and source as in claim 8.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 4,5,7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujiwara** (US patent Publication number 2003/0165127, of a record) in view of **Periyalwar et al. Periyalwar** hereinafter (US patent number 7,218,891, newly cited).

Fujiwara teaches the claimed subject matter in claim 1 as indicated above, rejection to claim 1.

Further to claim 5, **Fujiwara** also teaches that the use of CDMA, wherein each of the user station and destination having inherent specific code for identifying either the source station and destination station, therefore reads on the claimed reusing communication resource in claim 5.

What **Fujiwara** fails to show is that the relay station communicating with a plurality of base stations as in claim 4; the second radio interface comprising multi-input-multi-output as in claim 7; and the first radio interface comprising macroscopic multiplexing as in claim 9.

Periyalwar for the same endeavor as the instant application and that of **Fujiwara** teaches a multi-hop communication system, wherein the relay station, claimed first radio interface having a multi-input-multi-output antenna for communicating between source station and destination station as in claim 7, and communicating with at least one base station (at least on comprising one or more and reads on the claimed multiple base station) as in claim 4; and the multi-input-multi-output from the plurality of antennas of the relay station having the claimed broad multiplexing unit for transmission of the same data simultaneously. See starting col. 9, line 54 through col. 10, line 32.

Therefore, it would have been obvious to one of an ordinary skill in the art to use multiple antenna s for communicating between the user station and base station using relay station having configuration of multi-input-output depending on the distance between the user station and base station (see col. 10, lines 14-32) at the time the invention was made.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujiwara** (US patent Publication number 2003/0165127, of a record) in view of

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Dohler et al., Dohler. hereinafter (Patent Publication number 2004/0131025, newly cited).

Fujiwara teaches the claimed subject matter in claim 1 as indicated above, rejection to claim 1.

What **Fujiwara** fails to teach is that the first and second radio interfacing units using different categories of communication link in claim 10; and the different categories of communications links comprising multi-carrier modulation, spread-spectrum transmission, frequency division duplexing and time division duplexing in claim 11.

Dohler for the same endeavor as the instant application and that of **Fujiwara** teaches a multi-hop communication system for communicating between source and destination through at least on relay stations, wherein the communication between the source and destination through the relay station is performed under different categories of communication links, CDMA/CDMA, CDMA/TDMA, CDMA/FDMA---etc. See paragraph [0014]-[0139].

Therefore, it would have been obvious to one of an ordinary skill in the art to use different category of transmission method between the source station and destination station depending on the type configuration the source and destination stations are configured to transmit the data between the source and destination units at the time the invention was made.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujiwara** (US patent Publication number 2003/0165127, of a record).

Fujiwara teaches a multi-hop communication system (see figures 2,5 and 11) where the communication system comprising: a user station (see destination station 3) for communicating to the base station (see source station 1) using a plurality relay stations (see Relay station 2A- 2C, claimed at least two RS in claim 3) as in claims 12,14 and 16.

Further to claims 13-16, **Fujiwara** also teaches the use of CDMA techniques for transmission of signal between the user station and destination (see paragraph [008]) using a single frequency spectrum for transmission between the destination and source as in claim 13; simultaneous transmission between the source and destination using at least two relay stations as in claims 14-16.

What **Fujiwara** fails to show is that the source station connected with the core network. Such a base station connected to core network, such as network switching center is notoriously known and examiner is taking an official notice.

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Therefore, it would have been obvious to one of an ordinary skill in the art to connect the source station with a core network for switching data from one source station to another source station at the time the invention was made.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 17,18,19,22,23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by **Periyalwar et al. Periyalwar** hereinafter (US patent number 7,218,891, newly cited).

Periyalwar teaches a multi-hop communication system, wherein the relay station, claimed first radio interface having a multi-input-multi-output antenna for communicating between source station and destination station as in claims 17 and 22; and communicating with at least one base station using a multi-input-multi-output as in claims 18 and 23.

The system of **Periyalwar** uses different array of antennas in the multi-input-multi-output configuration depending on the rate of transmission required between the source station and destination station using the relay unit (see col. 1014-54).

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Further **Periyalwar** also teaches that a pilot signal is used for measuring the signal strength for purpose of routing (see abstract) as in claims 19 and 24.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Periyalwar et al. Periyalwar** hereinafter (US patent number 7,218,891, newly cited) in view of **Fujiwara** (US patent Publication number 2003/0165127, of a record).

Periyalwar teaches the claimed subject matter in claims 17 as indicated above.

Further **Periyalwar** also teaches that a pilot signal is used for measuring the signal strength for purpose of routing (see abstract). However **Periyalwar** fails to teach that a memory containing identification information.

Fujiwara for the same endeavor as the instant application and that of **Periyalwar** teaches a multi-hop communication system for communicating between source and destination through at least one relay stations, wherein the communication between the source and destination using an identification (see fig.8) for identifying the relay unit to route the data from the source to the destination.

Therefore, it would have been obvious to one of ordinary skill in the art to use the identification of **Fujiwara** in the system of **Periyalwar** for identifying the relay and

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properly routing the signal to be transmitted between the sources to the destination using the ID of each of the relay unit at the time the invention was made.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tesfaldet Bocure

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T.Bocure

Primary Examiner
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A large, stylized handwritten signature in black ink, likely belonging to the Primary Examiner, is written over the printed text. The signature is fluid and cursive, with a large loop at the top and a long, sweeping underline.